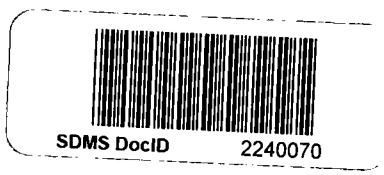

From: <abreslin@state.de.us>
To: R3PA1.R3SUPER(TOWLE-MICHAEL)
Date: 12/3/99 2:32pm
Subject: fwd: 12th Street Drum Site

Comments By: Ann L. Breslin@NCAWM@DNREC
Originally To: Ann L. Breslin@NCAWM@DNREC
Originally From: Robert Allen@NCAWM@DNREC
Original Date: 11/30/1999 3:03 PM
Comments:

FYI - Rob's comments to your Request for Eco evaluation -

Rob Allen will be able to make the 9th meeting at 2:00 pm. See you on the 8th..

Ann L. Breslin, Environmental Scientist III
DNREC - Site Investigation and Restoration Branch
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----------[Original Message]----------

I reviewed the EPA sampling data from their removal assessment (Aug 1999). The

lead concentrations in sediment exceed the NOAA ER-M of 218 mg/kg by about an order of magnitude. Remember that the ER-M is the median concentration at which adverse biological effects were observed in a large number of studies reviewed by NOAA. That means that at 218 mg/kg, effects are probable. The zinc ER-M (410 mg/kg) was also exceeded at one of the two sediment sample locations.

For soils, I compared the site sample data to Preliminary Remediation Goals (PRGs) for Ecological Endpoints developed by the Department of Energy at the Oak Ridge National Laboratory. Surface soil concentrations of lead, arsenic and zinc are well above their PRGs (40.5mg/kg, 9.9 mg/kg and 8.5 mg/kg, respectively), particularly for lead. This means that there is risk to terrestrial receptors and great potential for continual contaminant transport to the Brandywine Creek, as verified by the sediment sample results.

Risk from the site could be quantified if we selected site-specific receptors and made more precise exposure assumptions. We also would need to do more sampling to delineate the extent of sediment contamination in the Brandywine. However, the PRGs are good generic cleanup levels because they are based on toxicological benchmarks for real receptors (woodcock for zinc and lead; shrew and plant for arsenic).